
SUBTERRANEAN SWITZERLAND.

FORMERLY, books, records, human authorities (as they were called), transmitted occasional truths, but more frequently error after error, to successive generations. Strange assertions appeared to be truths, because the venerable but credulous Pliny, or such as Pliny, had delivered them, *ex cathedra*, to mankind. Now, we choose to see and judge for ourselves. Even history, which emphatically might be termed a science of record, is obeying the universal rule. If we do not supersede, we, at least, strive to authenticate history by the evidence of our eyes. And how do we effect this? Precisely by the same method that the geologist makes use of, when he is so wise—or, as poor Cowper thought, so sinful—as to

Drill and bore

The solid earth, and from the strata there
Extract a register.



To the earth, man instinctively turns for the archives of the past—to the earth—the great Keeper of the dead—the Preserver of extinct forms and vanished dynasties. We rifle tombs; we drive pits into buried cities; we plunge into railway cuttings; and so lay bare, and extract, the life of other days, as it is made manifest in its domestic implements, its handiworks, and ornaments, its modes of sepulture, and scrolls of epitaph. For many a year we have been burrowing thus: so that, since the day when, in seventeen hundred and eleven, *Herculaneum* gave up to view her first secrets, subterranean research has become an art that is already advancing to a respectable maturity. But the immense stride forward that it has made in our day, is owing to the multitude of objects and observations that have been so discovered and accumulated as to admit of chronology being founded, not on conjectural eras, but on the objects themselves, which, wheresoever found, illustrate and determine those eras. The old natural geology loosely judged of periods by the mere substances in which certain fossils were found. It babbled of the green-sand fossils, the fossils of the coal, the fossils of the chalk, &c. But this method of classification was found to be misleading and imperfect. "It is well known" (as Sir R. I. Murchison in his *Siluria* observes) "that a mass of sediment which in one tract is calcareous, often becomes sandy and argillaceous in another; and thus, in such cases, very close examination of the fossils can alone decide the exact line of demarcation." To this I add, from my own observation, that, in Switzerland, where there is no chalk, the peculiar fossils belonging to the cretaceous period are found in clay. Safely and rightly, then, each period of ascending organisation is decided by the fossil which is unalterable, and not by the local matter around it, which is susceptible of very great and surprising transformation. So it is with Human Geology. Recent works on ancient pottery take the line of judging of the age of a vase by form and manner of embellishment, not by the locality in which the vase is found. The Etrurian tomb, in which certain urns are discovered, does not prove that the urns are Etrurian; the forms of them, and the pigments, and the figures on them, may determine that they are of Greek, or haply of Egyptian origin, and that they have come from afar.

The same analytical argument that has been found satisfactory in respect to earth-buried objects, is now being applied to certain relics of antiquity discovered in water. The discovery has taken place in some of the lakes of Switzerland; and, it is found that these relics are indubitably of a period far anterior to the Roman conquest. Traces of lake dwellings, even of lake villages, have been discovered; that is, of cabins that have rested on piles, advancing, Dutch fashion, far into the water. The most remarkable of these discoveries was made in eighteen hundred and fifty-six, in the Lake of Moossee-

dorf, six miles from Berne. This lake, having been partially drained for agricultural purposes, gave to view the broken remains of stakes projecting a little above the mud that formed the bed of the lake. A further search revealed that many more stakes were hidden; being covered by a kind of under-water peat, in which have been found upwards of a thousand articles of a simple, and evidently very remote manufacture.

Taking for granted that a nation in its infancy uses, for its immediate purposes, only the substances which it finds ready to its hand, we cannot but assign to articles composed merely of stone, wood, or clay, a high antiquity. Reversing old fables, we discover that the golden age was not the age of gold, but of wood and stone. Of course these primitive substances, worked by human hands, have the priority over articles wrought from metal. Ops gave Saturn a stone to devour, long before Vulcan (scripturally Tubal Cain) became "the instructor of every artificer in brass and iron." Judging thus, we find that the articles from the Lake of Moosseedorf bear the stamp of primitive antiquity. They consist of fragments of rude pottery, made by the hand, evidently without a turning-wheel, domestic implements in stone and stag's-horn, without any trace of metal. The stone—a kind of serpentine, extremely hard—is fashioned into hatchets bearing the form of a wedge, and into instruments resembling chisels, hammers, and knives. Not one of the hatchets has been pierced—as in our day—so as to admit of a handle being inserted into it; on the contrary, the stone hatchet-head itself has been inserted into a handle, generally of stag's-horn, in some few cases, of wood.

Passing some time at Lausanne, I was made aware of these discoveries in, and near to, the Lake of Moosseedorf; and obtained a note of introduction to Professor Troyon, head of the Museum at Lausanne, who had transferred from the natural Museum of the Peat-moss, a quantity of the sub-lacustrine articles to a well-ordered museum of his own.

The professor, a most intelligent gentleman, with a benevolent countenance, began his lecture (for such, unaffected as it was, his discourse might be called) by opening a cupboard and displaying a variety of human skulls. These were all the skulls of Helvetians, or of Celts prior to Helvetians, or of some unnamed people older than the Celts. These, like many other articles in this private museum, had been chiefly discovered or dug up from ancient tumuli by the professor himself. He made me observe how small were the earliest skulls—unintellectual, but not cruel like some of later savage nations in which the great proportion of brain lay behind the ear; and so led me on to the higher developments of the skulls of the civilised, that occupied the upper shelves of the closet. We next proceeded to survey the contents of the first glass case, which were supposed to be coeval with the small-skulled generation. These were the horn

and stone industrial implements, that had recently been discovered in the Moosseedorf and other lakes in Switzerland; yet, even here, I should say, that the ingenuity displayed in the structure of these peculiar instruments betokened a people already somewhat advanced out of the first state of barbarism. The odd thing, that strikes an observer first, is the small, toy-like character of everything. Hatchet, indeed! One of these Lake-people hatchets lies on the quarter-sheet of foolscap on which I am writing, with room to spare. It is a pretty baby-hatchet, a piece of serpentine, not two inches long (very well sharpened, however), inserted with wonderful firmness into a detached portion of stag's-horn. I asked the professor, "Could any one have ever cut down a tree with that small thing?" The professor replied that by marks found on the old buried timber, it appeared probable that the ancient Lakers charred and nearly burnt through the trunks of the trees before they felled them with their miniature stone-hatchets. My attention was next turned to a dandy poniard, entirely of stag's-horn. A sharp-pointed and polished piece of horn, about four inches long, is inserted into an unpolished piece of antler, somewhat longer. The professor suggested that the handle of this poniard was worn almost smooth by use. I said, "Could the owner have killed so many men as that implies?" "No!" returned the professor, with a smile; "but the dagger may have served many uses—as a defence from wild beasts, to kill animals in the chase, and, perhaps, now and then, to despatch an enemy." Next, I admired a variety of small instruments that would have gone into a lady's étui—needles of bone, not perforated, and even a bodkin, properly perforated, a specimen almost unique: small chisels of beautifully polished serpentine, some of which looked quite gem-like in their green half-transparent lustre. These were supposed to be for cutting leather for mocassins or other garments. Then I noticed teeth of the red deer fastened into handles of rough horn. These, it is supposed, were used for polishing down the protuberant seams of barbarian dresses.

Very curious, indeed, were certain minute saws, not more than three inches long, like reductions of Queen Elizabeth's pocket-comb, with the teeth broken off. These flint saws, and one or two scoop-like articles that looked as if meant to scrape off the hair from deer-hides, also of flint, give rise, as Professor Troyon observed, to curious speculations. Flint of any kind is very rare in Switzerland, and flint of the particular kind from which the ancient Lakers had wrought their saws and knives, is not found in Switzerland.

The induction is, that the Lake-people were already sufficiently advanced in civilisation, to have made the first step towards commerce by import, or barter. The especial silex of the Lakers might have come from some neighbouring portion of Gaul; but, in truth, it resembled more the kind of flint that is found on our own British coasts. To have fashioned a flint knife,

such as was shown me, four inches long, the improving savages of the Lacustrine period must have had a very large flint-stone, such as Great Britain peculiarly produces. Waving a too precise settlement of this curious question, we, at least, are sure that the flint found at Moosseedorf was not a native production of Switzerland. There were also small arrow-heads prettily and neatly wrought from a fine kind of silex.

Under a glass and framed like a picture, I observed something that looked like coarse dark netting, the reticulations of which were jointed by rude knots. This, the professor told me, was a specimen of the supposed garments of the ancient people; of which the material was flax, and the mode of putting together, knitting, or rather knotting: the art of weaving not yet being practised by the Lakers. Some of the mysterious-looking needles in horn might have served for the manufacture of this primitive sort of shirting.

For food the Lakers had, as the remains of various seeds and fruit-stones demonstrated, the wood-raspberry, the wild plum ("prunus spinosa," which we unlearned schoolboys used to call bullas), small crab-apples, of which a dried and venerable specimen was shown me, and wheaten corn, sundry masses of which, apparently carbonised by fire, demonstrated that agriculture was an art not unknown.

Fragments of bones of various animals, which were discovered in quantities under the peat, and had either been used in the fashioning of instruments, or were the remains of antique repasts, proved that this primitive people already possessed the greater part of the domestic animals of our day. The professor showed me bones enough, in this department, to have served as the basis of a Cuvierian lecture on osteology. The Lakers had certainly gathered round them the ox, the pig, the goat, the cat, and many different sized kinds of dogs; nor had the horse been wanting, though, as the professor conjectured, chiefly used, by a sublime anticipation of Parisian gastronomy, as an article of food. With these were mingled quantities of bones of the elk and stag, the urus, bear, wild-boar, fox, beaver, tortoise, and various kinds of birds. Strange to say, the bones that one would most have expected a Lake-people to have left behind them—fish-bones—were entirely absent; for which absence, however, their chemical decomposition by some unknown agent might by possibility account.

Of what materials the habitations of the primitive Lakers were constructed, the professor now gave me ocular demonstration. First, I was shown what kind of stakes or piles their lake-cabins were elevated upon; the stakes themselves I did not see, only casts of them; for, when these very ancient piles were first taken out of the peat they had looked fresh and solid as those human bodies which have occasionally been found in airless stone coffins, bodies which for a moment have mocked the view with a phantasma of fresh life, and, almost immediately after, fallen to dust. So with the

stakes of the old Lakers. Once exposed to the air they crumbled; and their external skin was found to be only a feeble covering to rottenness. Professor Troyon, then, cleverly devised a mode of perpetuating these fleeting forms, by injections of plaster, from which moulds and casts were obtained. These casts, short and fragmentary, looked very like the ends of not very large hop-poles. The marks of the stone-chisels were still plainly discernible on the stakes, and they were sharpened to a point. The cabins that had been raised on these piles had left more enduring fragments. Most interesting were the morsels of old wall, which consisted of unbaked clay, bearing the impressions of woody twigs, whereby it was evident that the primitive cabins had been formed of boughs of trees plastered over and between with clay. From the fragments being calculable segments of a circle, two facts were ascertained: namely, that the cabins had been circular, and the circumference of them about fourteen feet. Some of these fragmentary piles and dwellings that were found in the Lake of Constance were above a hundred yards from the shore; and that they always had been so, and had not been thrown farther off from the mainland by any rising or agitation of the waters, was proved by pieces of earthen pots that lay at the bottom on the stirless depths, so near together, just as they had broken and fallen ages before, that much pottery had been reconstructed from such fragments. I observe, in passing, that the fragments of pottery are of rough manufacture, and, in their dark burnt-looking substance contain morsels of shining quartz, or mica, unassimilated to the prevailing texture. I possess some fragments, that, by carrying out the segments of the circle, appear to have been of great size (singular exception to the general littleness of the relics): as big, indeed, as Roman wine-vases. Another thing to be observed, is, the way these pots were evidently supported. They had pointed ends, and near them are found circular open rings of pottery, whose use was evidently to support the pointed ends of the vases, which were incapable of standing by themselves. The ring of burnt clay was the mortise, the pegtop-like termination was the tenon of the vase. In connexion with this, the professor told me that Admiral Elliot, who had visited the museum, recognised this primitive form of support as still used by the Hindoos and other Indian people.

This brings me to the probable origin of these ancient predecessors of the Swiss. They were a wave of that great tide which set in towards Europe from the East, choosing chiefly the inland seas, and ascending rivers as their roadways, or rather waterways, to new regions, where they should replenish the tenantless earth. Naturally such tribes, accustomed to water, chose water whereon to found their first settlements. Moreover, the long narrow causeways of wood, that led from the shore to their habitations, became a protection to them from wild beasts, or wilder human enemies. Also the waters supplied them with ready food, and

were as Nature's own clearings amidst the shaggy mountains and impenetrable forests, the mere fringe of which they with difficulty cut away for household purposes. Advanced into the free lake, the settlers could look around them and breathe the air of heaven. Herodotus has described similar lacustrine dwellings belonging to the Pæonians, who had settled on Lake Prasias, in Turkey.

When I asked the professor, "Why the implements of this ancient race were so baby-like and small?" he replied, "Probably because they themselves were small, and, like the Orientals, had very small hands and feet. However," he continued, "this is not conjecture, but fact. Look here at the next case in my museum, where you perceive ornaments of a more advanced period, though still belonging to the Lake-people. Look at these bracelets of horn, so deep in circumference but so small in diameter; you would think that even a child's hand could not enter them; yet here are the human bones still in them." This was true. The professor, finding the bracelets on the skeleton of a full-grown person, had fixed the bones of the wrist within the bracelets by pouring cement round them. "Look, also," resumed the professor, "at that bronze sword, still later in date, found at a time when the Age of Wood and Stone became the Age of Bronze; observe that the handle is only coextensive with three of my fingers, though my hand, like myself, is not very big. I met, some time ago, a Peruvian lady, who was the last descendant of Montezuma, and hers was the only hand and wrist I have ever known slip easily into that bracelet, which is as inflexible for the hand as Cinderella's glass slipper was for the feet."

That these Lake relics are, in very truth, of a most remote antiquity, was proved in various ways by Professor Troyon. He said, "A discovery that was made in the valley of the Orbe may give an idea of this antiquity. The Lake of Neuchâtel, it is well known, is always, because of the increase of the peat-bogs and the delta of alluvial matter formed by the rivers Thiele and Buron, retreating farther back from the Lake of Neuchâtel. In the time of the Romans, the actual site of Yverdon was under water. There was even a time when all the valley was covered by the lake. Then Mount Chamblon was an island, and, at the foot of this mount, were Lake-villages of the ancient people, whose relics, which are all of the Age of Stone, are now found many feet below the surface of the bog. By accurate calculation of the time that the lake now takes in its retreatings, we find that the destruction of these lake-dwellings must have occurred, at latest, in the fifteenth century before the Christian era.

"But here is another proof of this," continued the professor. "Look at these fir-poles which were found in the Lake of Geneva, the supports of ancient villages of a later date, though still of a period long previous to the Roman conquest. You see that they are the real wood, while I only possess casts of the

primitive poles; and that they are not only much longer than the ancient stakes, but curiously worn to a gradual slenderness, and to a point, by the gentle but constant action of the waves upon their upper surfaces. Why is this difference? Because these poles, when discovered, still projected two or three feet above the mud of the lake, while the others were covered by the mud itself. Now it is calculated that a thousand years, at least, must have elapsed before the fir-poles could be brought, by the slow action of tideless water, to the level of the bed of the lake."

I own that these reasons did not quite convince me of the deduction at which the professor wished to arrive: namely, that the first, and not altogether savage, inhabitants of Switzerland, dated from two thousand years before Christ. Many circumstances—draining, for instance—might, I thought, have expedited the retiring of the waters, or the wearing away of the piles. Nevertheless, with all the caution of scepticism, it is impossible not to allow that the Lake-relics proceed from an age long anterior to the Christian era, and very far more remote than the Roman conquest. Even supposing the objects now discovered, to be coeval with the time when Herodotus mentions the Pæonian Lakers, they remount to the seventy-fourth Olympiad, answering to four hundred and eighty-four years before Christ—an antiquity to be respected by us poor mortals, who grow old in seventy whirls of our little planet.

Pursuing our investigations, we find that, dark as it may appear in its origin, the end of this Lacustrine Dynasty has a sad light cast upon its cause. The villages, the inhabitants, all evidently perished by a sudden catastrophe; and that catastrophe was Fire.

To understand this, reconstruct, by the architecture of fancy, the primitive villages of the Swiss Lakers. Take your stand on some rock of vantage, whence you can see all that is not water, or snowy summit, covered with black-looking crowded pine-forests that teem with the red-deer—once numerous in Switzerland, now extinct. Throw out your narrow wooden causeways a hundred yards forward into the shallow waters nearest the shore, drive whole quincunxes of fir-poles into the bed of the lake, top them with rudely-fashioned planks, and upon the artificial peninsula now elevated above the waters, transport a bit of rivery Orientalism: dwelling-places for man, gardens, if you wish, or patches of ripened grain (for the catastrophe must have happened at harvest time), such as, even at this day, may be seen floating on the half-quaggy, inundating rivers and channel-pools of China. Penetrate into those circular Red Indian-like wigwams that stand like beehives on the stationary rafts, and see the rude pots upon the earthen shelves, the traps in the floor for catching or preserving fish, the little barbarian children, tethered by the foot with a cord to a projecting stake, lest they fall into the water (both these particularities are mentioned by Herodotus in his account of the Pæonians), and

behold the industrious natives themselves, the pigmy race, with their small, but constructive and not cruel heads, and their long, flexible Hindoo-like hands. Enter their manufactories for their ingenious tools and petty ornaments; and, when you have set the whole nation busy at their several employments, suddenly crush the whole of your scene and drama by the irruption of some wild band of warlike Gauls, who annihilate our poor aborigines, and their fragile dwellings, by casting fire-balls into the Lake-villages, and killing or carrying away the inhabitants.

No other combination of circumstances can account for the appearances which the remains of the Lake villages present. The carbonised corn, the pieces of wood half burnt, the marks of fire everywhere, all testify to the destruction of these villages by fire. Then, again, it is apparent that all industry stopped on a sudden. The workman was at his polishing, the housewife was grinding corn by hand between two flat stones, but, by a fate worse than that denounced upon Jerusalem—"the one taken and the other left"—of our poor Lake-people none were left. The late explorers of these mysteries came, at Moosseedorf, upon a marvellous heap of objects of industry, which, by their state and number, crowded over a considerable area, proved that the discoverers were standing on the site of the village manufactory of industrial implements. Professor Troyon showed me many proofs that it was so—pieces of serpentine, half-fashioned and thrown away because they had been broken in the cutting, and rendered unfit for use; split stag's-horn also rejected; and, more affecting still, instruments that were not thrown away because of defect, but were dropped unfinished because of a sudden catastrophe: axes that lay beside the handles, into which time was not given to insert them; poniards yet unsharpened; needles or hair-pins yet unpointed.

He who visits Pompeii is not so much affected by the architecture he finds there, as by the signs of human life that realise the sudden destruction of the city. The woman's crouching form, impressed upon the lava that had filled a cellar, interests the heart more than hundreds of tessellated pavements. The remains fetched up from the subaqueous Pompeii of Switzerland also produce this touching and human effect. They are more than books or oldest parchments wherein to read how race after race of men do verily pass away, according to old Homer's deathless simile, like leaves on trees. Science, too, on such evidences of abrupt conclusions to things, is wonderfully impelled to speculate on the wherefore of these stern closings-up of human periods. It is as if some power had grown tired of a particular creation. Strong relation here to the geology of nature, in which the mintage of preceding eras is found suddenly to cease; the medals, indeed, laid up in the stupendous repositories of a past creation, but the die that stamped them broken for ever, and cast away as a thing of no account. No other wise is it with

the geology of man, with human relics subterranean or subaqueous. In the midst of their full life they were suddenly and utterly destroyed; if not by a volcano or an earthquake that engulphs or overwhelms them, by man's own rage. The excavations of Wroxeter display a people suddenly crushed by some other people. The conquered are gone: the conquerors themselves have passed away. Similarly, the Swiss lakes are now giving up their records of hasty catastrophes, and nations blotted out for ever. But why so sudden? Why so complete these destructions? Here, the doombook is silent and decipherless.

I can only glance at later eras to be read in the contents of Professor Troyon's museum. Arranged with infinite knowledge, this complete collection rises from the age of stone and wood to that of bronze (which composite material, though imperfectly mixed, does, singularly enough, precede any demonstration of simple iron), and so on to periods, still remote, but which, like the Eocene and Pliocene of Geology, are assimilated to our own time by form and material; periods in which the luxury of the precious metals, and the beauty of gems, far from being unknown, were displayed in works of human fancy, then young and vigorous, which modern art but feebly imitates.

There is, however, one group of relics of the ante-Roman period, evidences of an event that probably occurred two centuries before Christ, which I cannot pass over in silence, since these evidences contrast most strikingly with any revelations that we obtain of the harmless, childish, and in all respects—except the poniards—peaceful people of the Lakes.

The time had grown warlike: as the bronze spear-heads and swords demonstrate. The human beings had grown larger: I could almost insinuate my hand into the inflexible bronze circle without a clasp, which was called a woman's bracelet, while a woman's bronze girdle, with clasp, gave no wasp-like idea of the women's waists of the period. Society had left the lakes, as too tame, in order to dwell in the hills and forests: living, to construct bloody altars; dying, to be burnt and potted in tumuli. The relics I was now surveying came from a tumulus opened some years ago, under the direction of Professor Troyon, of course in a forest, on a hill. The hill and the forest are about five miles inland from Lausanne. The relics are three earthen pots which are filled with a calcined-looking stuff; then, sundry small bones of animals; then a number of warlike implements, and a still greater number of female ornaments, consisting of glass-bead necklaces and bracelets, that have an Egyptian character, and a very curious appendage, like a little bronze cage with a round white stone loose in it—a child's rattle, in fact.

These objects were found in the following order: Lowest were the earthen pots that held all which had once been a hero, or heroes.

Above these, came a vast assemblage of bones, supposed to be those of the warrior's favourite animals, which were slain in order that they might accompany him into Hades. At the summit of the tumulus—crowning the terrible interest—were four skeletons of females, supposed to be the warrior's four wives, also sent after him to Hades.

Concentrating the interest, I take the professor's account of the uppermost skeleton. It was that of a young female, in an attitude of supplication and wild agony. The knees were bent, as if she had implored for life; the arms were cast on high, as if in frantic deprecation of her fate. She had evidently been tossed upon the top of the pile, and her limbs yet retained the very posture in which she died. Then earth and stones had been thrown hastily over the corpse, to crush out the remains of life, if any remains of life there were. A large stone had shattered one of her feet; another lay across her arm, the bone of which it had broken.

"Was she stoned to death?" I asked. "No," replied the professor: "she was probably slaughtered at a stone-altar, which was close to the tumulus, and in which the customary blood-basins of the heathen are still to be seen in situ—for, the altar, as we had others of the same kind, we did not remove from its place. Besides, it was the wish of the owner of the wood that the relic should remain on his property."

"Did you preserve the skeleton?"

"I could not. It fell into a thousand pieces in being removed from the pile. But here is the young creature's skull; and you see by the teeth (magnificent are they not?) that the poor thing was young."

I was struck by the preservation of the small and perfect teeth; and moreover by the fact that the skull was beautifully and intellectually formed.

"Ay!" said the professor, "it was an affecting sight to see that skeleton uncovered, telling its own poor history of two thousand years ago! Several ladies, who were present at the exhumation (the whole search into the tumulus took four days; and, as it excited great interest, was attended by many people), shed tears as they looked at the remains."

I felt how possible it was, even for a man, to have wept at such a drama; and the thought occurred to me, "Eras do not always rise to better things! The poor gentle savages on their artificial islets would not have done the deed which the nation of the forest, capable as it was of higher arts, arms, and manufactures, so fanatically perpetrated. Was there ever a priest upon the tethered rafts of the Lakers? We find no trace of him! But here was evidently a grand Sacrificator, and an unexceptionable Altar. Blessed be the Faith which has overturned every sacrificial altar save that of the loving heart!"

Here, according to all the laws of climax, I should end; but I cannot help throwing out one hint in parting to the antiquarian explorers of my own country:

"Look well into the British Lakes."

